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## Pulmonary Complications of the Acquired Immunodeficiency Syndrome

PULMONARY COMPLICATIONS are a major source of morbidity and mortality in patients with the acquired immunodeficiency syndrome (AIDS). Indeed, a sudden increase in the prevalence of *Pneumocystis carinii* pneumonia in otherwise healthy young homosexual men first alerted the medical community to this disease. The T-cell defect produced by the human immunodeficiency virus leaves these patients prey to numerous opportunistic pathogens and neoplasms that produce pulmonary disease.

*Pneumocystis carinii* is the major pulmonary pathogen occurring in 60% to 85% of patients with AIDS. The presenting symptoms include fever, cough, and dyspnea (85%), with chills (26%) and pleuritic chest pain (23%) occurring less frequently. A chest x-ray film is usually normal or shows diffuse interstitial infiltrates. Unilateral infiltrates and cavitary disease have been reported in patients with *P carinii* pneumonia. The alveolar-arterial oxygen difference is typically widened— > 15 torr, 92%—and portends a poor prognosis if greater than 25 torr. Although gallium lung scanning, the diffusing capacity for carbon monoxide, and exercise testing may be used for noninvasive assessments, a diagnosis rests on detecting organisms. Tests of induced sputum specimens may be positive 50% of the time, and transbronchial lung biopsy combined with bronchoalveolar lavage has a 95% to 100% sensitivity. Pentamidine isethionate or trimethoprim-sulfamethoxazole, administered intravenously for two to three weeks, remains the mainstay of therapy. Prophylactic studies using nebulized pentamidine aerosol delivered into the bronchial tree are very encouraging. A 15% to 30% mortality is expected with each episode of *P carinii* pneumonia, however.

Other pulmonary infections associated with AIDS include *Cytomegalovirus* (15% to 34%), *Mycobacterium avium-intracellulare* (16% to 21%), *Mycobacterium tuberculosis* (4%), fungal infections (4%), and, most particularly, cryptococcal pneumonia, *Legionella pneumophila* (4%), and *Nocardia.* Because of a B-cell defect, AIDS patients also have a higher incidence of bacterial pneumonias (10%), chiefly caused by *Staphylococcus aureus,* primarily in association with pulmonary Kaposi's sarcoma.

There are also noninfectious causes of pulmonary infiltrates in this patient population. Kaposi's sarcoma is clinically and radiologically indistinguishable from *P carinii* pneumonia and accounts for about 10% of infiltrates. Pulmonary Kaposi's sarcoma is associated with a high mortality rate—88%. Nonspecific pneumonitis, on the other hand, generally carries a good prognosis and may be responsible for as high as 12% of the complications of AIDS.

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